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Bibliography

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[Translation done.]

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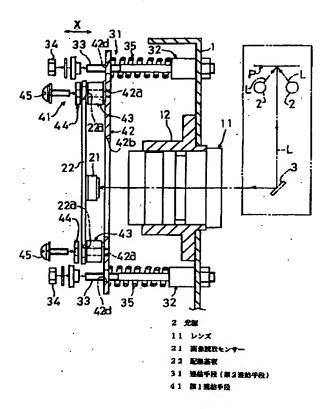
Epitome

(57) [Abstract]

[Objects of the Invention] It enables it to perform focus adjustment and optical-path adjustment easily and correctly.

[Elements of the Invention] A 1st connection means (41) to support a wiring substrate (22) movable in a horizontal, a perpendicular, and the right-and-left roll direction, and this 1st connection means (41) are moved to a cross direction, and the 2nd connection means (31) in which approach and isolation are possible is established to a lens (11).

[Translation done.]



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CLAIMS

[Utility model registration claim]

[Claim 1] In the optical reader equipped with the wiring substrate with which the image reading sensor which changes into an electrical signal the light which was reflected by the manuscript from the light source which irradiates light, and a manuscript, and passed the lens was formed The optical reader characterized by having moved a 1st connection means to support said wiring substrate movable in a horizontal, a perpendicular, and the right-and-left roll direction, and this 1st connection means to the cross direction, and establishing the 2nd connection means in which approach and isolation are possible to said lens.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed explanation of a design]

[0001]

[Industrial Application]

This design is related with an optical reader.

[0002]

[Description of the Prior Art]

The outline configuration of the conventional optical reader is shown in drawing 5.

In drawing, 2 is the light source for irradiating Light L at Manuscript P. It is reflected with Manuscript P and the light L irradiated from the light source 2 goes into the image reading sensor 21 through the reflective mirrors 3 and 3 and a lens 11. And it is changed into an electrical signal by this image reading sensor 21, and an image is read based on the signal concerned.

[0003]

As shown in <u>drawing 3</u>, specifically, the predetermined location of the body frame 1 is equipped with the lens 11 through the lens holder 12. Moreover, the wiring substrate 22 with which the image reading sensor 21 was formed is supported movable in the horizontal, the perpendicular, and the right-and-left roll direction to the lens 11 approximately in the predetermined location of the body frame 1 through the connection means 31. [0004]

Moreover, the connection means 31 consists of a mounting bolt 32, a nut 34, and spring 35 grade. Here, two or more (for example, three pieces) mounting bolts 32 are arranged by the body frame 1 with predetermined spacing, as shown in drawing 3 and drawing 4. The wiring substrate 22 is supported movable in the cross direction (the direction of arrow-head X), the horizontal direction (the direction of H), the perpendicular direction (the direction of V), and the right-and-left roll direction (R1, R 2-way), and these mounting bolts 32 are equipped with the spring 35 through the washer 36 between the wiring substrates 22 concerned and boss section 32a of each mounting bolt 32. Therefore, the wiring substrate 22 can be moved to a cross direction (the direction of X) by making a nut 34 screw in the screw section 33 of each mounting bolt 32, and making it rotate suitably. Moreover, the attachment posture of the substrate 22 (therefore, image reading sensor 21) concerned can be changed by making the minute migration of the wiring substrate 22 carry out in a horizontal direction (the direction of H), a perpendicular direction (the direction of V), and the right-and-left roll direction (R1, R 2-way) on the flat surface which intersects perpendicularly with the space of drawing 3. [0005]

A deer is carried out, and in the above-mentioned optical reader, in order to perform focus adjustment and optical-path adjustment, focus adjustment is first performed in advance of optical-path adjustment. That is, focus adjustment is performed by rotating each nut 34, resisting the elasticity of a spring 35, and making the wiring substrate 22 (therefore, image reading sensor 21) approach and isolate suitably to a lens 11. [0006]

In this way, it is horizontally (the direction of H) about the wiring substrate 22 in the place which focus adjustment ended.

The light-receiving side of the image reading sensor 21 is doubled with the optical path of an ideal by making minute migration carry out in a perpendicular direction (the direction of V), and the right-and-left roll direction (R1, R 2-way).

[0007]

[Problem(s) to be Solved by the Device]

By the way, in the above-mentioned optical reader, since the wiring substrate 22 is horizontally etc. moved in case optical-path adjustment is performed, a focus may be out of order during the optical-path adjustment concerned. If this situation arises, it must redo from focus adjustment and will take time and effort. [0008]

The purpose of this design is to offer the optical reader which can perform focus adjustment and optical-path adjustment easily and correctly in view of the above-mentioned situation.
[0009]

[Means for Solving the Problem]

In the optical reader equipped with the wiring substrate with which the image reading sensor which changes into an electrical signal the light which this design was reflected by the manuscript from the light source which irradiates light, and a manuscript, and passed the lens was formed It is characterized by having moved a 1st connection means to support said wiring substrate movable in a horizontal, a perpendicular, and the right-and-left roll direction, and this 1st connection means to the cross direction, and establishing the 2nd connection means in which approach and isolation are possible to said lens.

[0010]

[Function]

About this design, in order to perform focus adjustment and optical—path adjustment, focus adjustment is performed by moving a wiring substrate (image reading sensor) to a cross direction through the 1st connection means, and making it first approached and isolated suitably to a lens using the 2nd connection means. Next, the light—receiving side of an image reading sensor is doubled with the optical path of an ideal by making the minute migration of the wiring substrate carry out in a horizontal, a perpendicular, and the right—and—left roll direction using the 2nd connection means, where the 1st connection means is locked. Since the 1st connection means is locked and an image reading sensor does not move to a cross direction, a focus seems under the present circumstances, not to be out of order.

Thus, since it can carry out by separating focus adjustment and optical-path adjustment using the 1st and 2nd connection means, both adjustments can be performed easily and correctly.

[0011]

[Example]

One example of this design is explained based on a drawing. The optical reader concerning this example is constituted including the body frame 1, the light source 2, the reflective mirror 3, a lens 11, a lens holder 12, the image reading sensor 21, the wiring substrate 22, the 1st connection means 41, and the 2nd connection means (31), as shown in drawing 1.

In addition, about the same thing as the component shown in <u>drawing 3</u> – <u>drawing 5</u>, the same sign is attached, and the explanation is omitted or simplified.

[0012]

Here, as shown in drawing 2, the 1st connection means 41 is a means to support the wiring substrate 22 (image reading sensor 21) movable in a horizontal direction (the direction of arrow-head H), a perpendicular direction (the direction of V), and the right-and-left roll direction (R1, R 2-way), so that it may dissociate with focus adjustment and optical-path adjustment can be performed. In this example, the 1st connection means 41 is constituted including the set plate 42, colors 43 and 44, and the justification screw 45, as shown in <u>drawing 1</u>. Opening 42b for carrying out ON light of the reflected light (L) from Manuscript P to the image reading sensor 21 is formed in the set plate 42. Moreover, in the set plate 42, screw hole 42a is predetermined spacing detached building **** eclipse ***** two or more (this example three pieces). Furthermore, corresponding to each mounting bolt 32, 42d of two or more (this example three pieces) attaching holes is established in the periphery section of the set plate 42. The wiring substrate 22 is attached in this set plate 42 further again through each unloaded hole 22a prepared in the substrate 22 concerned. colors 43 and 44, the justification screw 45, screw hole 42a, etc. Unloaded hole 22a of the wiring substrate 22 is formed so that the justification screw 45 may have some allowances and may be fitted in. Therefore, minute migration of the wiring substrate 22 can be carried out in a horizontal direction (the direction of H), a perpendicular direction (the direction of V), and the right-and-left roll direction (R1, R 2-way) on the flat surface which intersects the substrate 22 concerned perpendicularly with the set plate 42 with the space of drawing 1 in the state of [the] a tacking meal using justification screw 45 grade. [0013]

On the other hand, the 2nd connection means moves the 1st connection means 41 to a cross direction (the direction of X), and is considered as approach and the configuration made to isolate to the lens 11. In this example, the 2nd connection means is formed using the conventional connection means 31 (a mounting bolt 32, a nut 34, and spring 35 grade), in order to plan cost reduction etc. [0014]

Next, an operation is explained. In order to perform focus adjustment and optical-path adjustment, focus adjustment is first performed using the 2nd connection means (31) by moving the wiring substrate 22 (image reading sensor 21) to a cross direction through the 1st connection means 41, and making it suitably approached and isolated to a lens 11. [0015]

Next, the light-receiving side of the image reading sensor 21 is doubled with the optical path of an ideal by making the minute migration of the wiring substrate 22 carry out in a horizontal, a perpendicular, and the right-and-left roll direction using the 2nd connection means (31), where the 1st connection means 41 is locked. Since the 1st connection means 41 is locked and the image reading sensor 21 does not move to a cross direction, a focus seems under the present circumstances, not to be out of order. [0016]

Thus, since it can carry out by separating focus adjustment and optical-path adjustment using the 1st and 2nd connection means (31) and 41, both optical-paths adjustment can be performed easily and correctly. [0017]

Moreover, since it is not made to move to a cross direction directly using each nut 34, the wiring substrate 22 can also lessen the curvature at the time of focus adjustment extremely compared with the former, and can

perform easily and correctly focus tone **, as a result optical-path adjustment also from this point.

[Effect of the Device]

Since it considered as the configuration which was made to move a 1st connection means to support a wiring substrate movable in level, a perpendicular, and the right-and-left roll direction, and this 1st connection means to a cross direction, and established the 2nd connection means in which approach and isolation are possible to the lens according to this design, it can carry out by the ability separating focus adjustment and optical-path adjustment, and both can be adjusted easily and correctly.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional view showing the whole one example configuration of this design.

[Drawing 2] It is drawing showing the attachment situation of a justification bolt.

Drawing 3] It is drawing for explaining the focus adjustment and optical-path adjustment in the conventional optical reader.

[Drawing 4] It is the top view of the conventional optical reader.

[Drawing 5] It is drawing showing the outline configuration of the conventional optical reader.

[Description of Notations]

2 Light Source

11 Lens

21 Image Reading Sensor

22 Wiring Substrate

31 Connection Means (2nd Connection Means)

41 1st Connection Means

[Translation done.]

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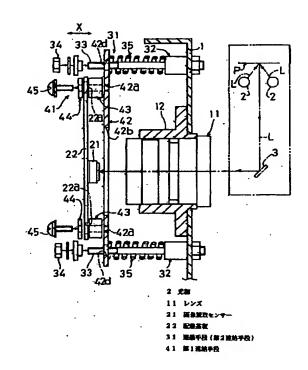
(74)代理人 弁理士 長島 悦夫 (外1名)

(54) 【考案の名称 】 光学読取装置

(57)【要約】

[目的] ピント調整および光路調整を容易かつ正確に 行うことができるようにする。

[構成] 配線基板(22)を水平, 垂直および左右ロ ール方向に移動可能に支持する第1連結手段(41) と、この第1連結手段(41)を前後方向に移動させて レンズ (11) に対して接近・離隔可能な第2連結手段 (31) とを設ける。



【実用新案登録請求の範囲】

【請求項1】 原稿に光を照射する光源と、原稿から反 射されレンズを通過した光を電気信号に変換する画像読 取センサーが設けられた配線基板とを備えた光学読取装 置において、

前記配線基板を水平、垂直および左右ロール方向に移動 可能に支持する第1連結手段と、この第1連結手段を前 後方向に移動させて前記レンズに対して接近・離隔可能 な第2連結手段とを設けたことを特徴とする光学読取装 置。

【図面の簡単な説明】

【図1】本考案の一実施例の全体構成を示す断面図であ る。

*【図2】位置調整ボルトの取付状況を示す図である。

【図3】従来の光学読取装置におけるピント調整・光路 調整を説明するための図である。

【図4】従来の光学読取装置の平面図である。

【図5】従来の光学読取装置の概略構成を示す図であ

【符号の説明】

2 光源

1 1 レンズ

10 2 1 画像読取センサー

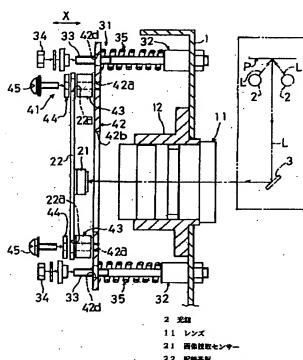
22 配線基板

連結手段(第2連結手段) 3 1

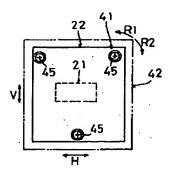
41 第1連結手段

【図1】

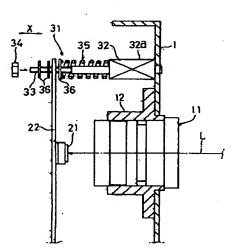


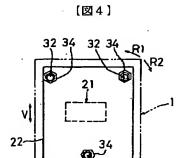


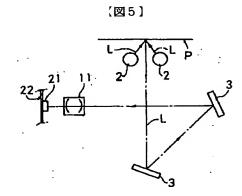
【図2】



【図3】







【考案の詳細な説明】

[0001]

【産業上の利用分野】

本考案は、光学読取装置に関する。

[0002]

【従来の技術】

図5に従来の光学読取装置の概略構成を示す。

図において、2は原稿Pに光Lを照射するための光源である。光源2から照射された光Lは原稿Pで反射され反射ミラー3,3およびレンズ11を介して画像読取センサー21に入る。そして、この画像読取センサー21で電気信号に変換され、当該信号に基づき画像が読取られる。

[0003]

具体的には、レンズ11は、図3に示す如く、本体フレーム1の所定位置にレンズホルダ12を介して装着されている。また、画像読取センサ21が設けられた配線基板22は、本体フレーム1の所定位置に連結手段31を介してレンズ11に対して前後、水平、垂直および左右ロール方向に移動可能に支持されている

[0004]

また、連結手段31は、取付ボルト32, ナット34およびスプリング35等から構成されている。ここで、取付ボルト32は、図3および図4に示す如く,本体フレーム1に所定の間隔をもって複数個(例えば3個)配設されている。これら取付ボルト32には、配線基板22が前後方向(矢印X方向),水平方向(H方向),垂直方向(V方向)および左右ロール方向(R1,R2方向)に移動可能に支持されており、当該配線基板22と各取付ボルト32のボス部32aとの間には座金36を介してスプリング35が装着されている。したがって、各取付ボルト32のネジ部33にナット34を螺合させ適宜回動させることにより、配線基板22を前後方向(X方向)に移動させることができる。また、配線基板22を、図3の紙面と直交する平面上で水平方向(H方向),垂直方向(V方向)および左右ロール方向(R1,R2方向)に微小移動させることにより当該基

板22 (したがって画像読取センサー21) の取付姿勢を変更することができる

[0005]

しかして上記した光学読取装置において、ピント調整および光路調整を行うには、まずピント調整を光路調整に先立って行う。すなわち、各ナット34を、スプリング35の弾性に抗しつつ回動させて配線基板22(したがって画像読取センサー21)をレンズ11に対して適宜接近・離隔させることによりピント調整を行う。

[0006]

こうして、ピント調整が終了したところで配線基板22を水平方向(H方向) , 垂直方向(V方向), 左右ロール方向(R1, R2方向)に微小移動させることにより画像読取センサー21の受光面を理想の光路に合わせる。

[0007]

【考案が解決しようとする課題】

ところで、上記した光学読取装置においては、光路調整を行う際,配線基板2 2を水平方向等に動かすので、当該光路調整中にピントが狂ってしまうことがあ る。かかる事態が生じると、ピント調整からやり直さなければならず手間がかか る。

[0008]

本考案の目的は、上記事情に鑑み、ピント調整および光路調整を容易かつ正確に行うことができる光学読取装置を提供することにある。

[0009]

【課題を解決するための手段】

本考案は、原稿に光を照射する光源と、原稿から反射されレンズを通過した光 を電気信号に変換する画像読取センサーが設けられた配線基板とを備えた光学読 取装置において、前記配線基板を水平、垂直および左右ロール方向に移動可能に 支持する第1連結手段と、この第1連結手段を前後方向に移動させて前記レンズ に対して接近・離隔可能な第2連結手段とを設けたことを特徴とする。

[0010]

【作用】

本考案では、ピント調整および光路調整を行うには、まず、第 2 連結手段を用いて、配線基板(画像読取センサー)を第 1 連結手段を介して前後方向に移動させてレンズに対して適宜接近・離隔させることによりピント調整を行う。

次に、第1連結手段をロックした状態で、第2連結手段を用いて配線基板を水平、垂直および左右ロール方向に微小移動させることにより、画像読取センサーの受光面を理想の光路に合わせる。この際、第1連結手段がロックされており、画像読取センサーは前後方向に移動しないのでピントが狂うようなことはない。

このように、第1, 第2連結手段を用いてピント調整と光路調整とを分離して 行うことができるので、両調整を容易かつ正確に行うことができる。

[0011]

【実施例】

本考案の一実施例を図面に基づき説明する。

本実施例に係る光学読取装置は、図1に示す如く,本体フレーム1,光源2, 反射ミラー3,レンズ11,レンズホルダ12,画像読取センサー21,配線基板22,第1連結手段41および第2連結手段(31)を含み構成されている。

なお、図3〜図5に示した構成要素と同一のものについては同一の符号を付し、その説明を省略もしくは簡略化する。

[0012]

ここで、第1連結手段41は、光路調整をピント調整と分離して行えるように , 図2に示す如く, 配線基板22 (画像読取センサー21)を水平方向 (矢印H 方向), 垂直方向 (V方向) および左右ロール方向 (R1, R2方向) に移動可能に支持する手段である。本実施例においては、第1連結手段41は、図1に示す如く, セットプレート42, カラー43, 44および位置調整ネジ45を含み構成されている。セットプレート42には、画像読取センサー21に原稿Pからの反射光 (L)を入光させるための開口部42bが形成されている。また、セットプレート42には、ネジ穴42aが複数個 (本実施例では3個) 所定間隔離れて設けられている。さらに、セットプレート42の外周部には、各取付ボルト3

2と対応して取付穴42dが複数個(本実施例では3個)設けられている。さらにまた、このセットプレート42には、配線基板22が、当該基板22に設けられた各バカ穴22a,カラー43,44,位置調整ネジ45およびネジ穴42a等を介して取付けられている。配線基板22のバカ穴22aは、位置調整ネジ45が多少の余裕をもって嵌挿されるように形成されている。したがって、配線基板22を、位置調整ネジ45等を用いてセットプレート42に仮止めし、その状態で当該基板22を図1の紙面と直交する平面上で水平方向(H方向)、垂直方向(V方向)および左右ロール方向(R1,R2方向)へ微小移動することができる。

[0013]

一方、第2連結手段は、第1連結手段41を前後方向(X方向)に移動させて レンズ11に対して接近・離隔させる構成とされている。本実施例においては、 第2連結手段は、コスト低減等を図るために従来の連結手段31(取付ボルト3 2.ナット34およびスプリング35等)を利用して形成されている。

[0014]

次に作用について説明する。

ピント調整および光路調整を行うには、まず第2連結手段(31)を用いて、 配線基板22 (画像読取センサー21)を第1連結手段41を介して前後方向に 移動させ適宜レンズ11に対して適宜接近・離隔させることによりピント調整を 行う。

[0015]

次に、第1連結手段41をロックした状態で,第2連結手段(31)を用いて 配線基板22を水平,垂直および左右ロール方向に微小移動させることにより画 像読取センサー21の受光面を理想の光路に合わせる。この際、第1連結手段4 1がロックされており、画像読取センサー21は前後方向に移動しないのでピン トが狂うようなことはない。

[0016]

このように、第1, 第2連結手段(31), 41を用いてピント調整と光路調整とを分離して行うことができるので、両光路調整を容易かつ正確に行うことが

できる。

[0017]

また、配線基板22は、直接、各ナット34を用いて前後方向に移動させないので、ピント調整時の反りも従来に比べ極めて少なくすることができ、この点からもピント調整ひいては光路調整を容易かつ正確に行うことができる。

[0018]

【考案の効果】

本考案によれば、配線基板を水平,垂直および左右ロール方向に移動可能に支持する第1連結手段と、この第1連結手段を前後方向に移動させてレンズに対して接近・離隔可能な第2連結手段とを設けた構成としたので、ピント調整および 光路調整とを分離して行うことができ,両方調整を容易かつ正確に行うことができる。

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